Vendor Advice to the HIT Standards Committee

Orion Health

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1 Orion Health

1.1 About Orion Health

Orion Health was founded in 1993 and is a leading provider of clinical workflow and integration technology for the healthcare sector. Orion Health's clinical information software meets the information needs of clinical staff and healthcare managers, delivering secure, universal access to healthcare information and helping healthcare providers proactively manage and coordinate patient care across the community. Orion Health's integration and messaging products streamline the exchange of healthcare data within organizations and between business partners.

Orion Health has over 1,000 customers in 22 counties who use our technology. Worldwide, Orion Health is implementing health information communities involving over 35 million patients with hundreds of thousands of active users.

Orion Health's partners include leading health system integrators and IT vendors such as Initiate Systems and Oracle Corporation. Orion Health supplies health integration software to many leading institutions, including Lahey Clinic, New York State Department of Health, UCLA Medical Center, Shared Health, Alberta Health Services, the State of Maine and U.S. Centers for Disease Control and Prevention (CDC).

In the USA over 30 state health departments and over 10 state universities use Orion Health products. In addition, over 400 vendors embed Orion Health tools in their products.

1.2 Orion Health's Experience

The Orion Health HIE solution has been in production for in excess of five years. Our HIE customers include:

1) Shared Health, Tennessee, USA
2) Maine HealthInfoNet, Maine, USA
3) Western Washington Rural Health Collaborative, Washington, USA
4) Lahey Clinic Hospital, Massachusetts, USA
5) California Prisons Receivership, California, USA
6) Alberta Health Services, formerly known as Capital Health Services, Alberta, Canada
7) New Brunswick Department of Health, New Brunswick, Canada
8) Agence de la Santé et des Services sociaux de Montréal, Montreal, Canada
9) Greater Glasgow NHS Trust, Glasgow, Scotland
10) IB Salut Servei de Salut de Illes Balears, Balearic Islands, Spain
11) NSW Health, Sydney, Australia

In addition Orion Health has also deployed a remote monitoring home health system with Alere, and a nationwide immunization management system in New Zealand.

Orion Health has over 250 employees and has offices in Santa Monica (CA, USA), Boston (MA, USA), Edmonton (Canada), Reading (United Kingdom), Palma (Spain), Sydney (Australia) and Auckland (New Zealand).

2 General Advice to the HIT Standards Committee

2.1 New standards need good supporting documentation

A significant and often underappreciated barrier to adoption of new standards which represent a significant change from the past is the complexity of the new standard, and the supporting documentation, examples, testing tools that come in support of the new standard.

In particular Canada adopted HL7 V3 fairly early on and used it as the basis for interoperability and a regional level. In the early stages, the implementations were made more difficult by

1. The standard being continuously updated leading to a moving target
2. The general lack of experience in HL7 V3 which introduces considerable new conceptual complexity over HL7 2.x
3. The general lack of easy to understand documentation and examples that can assist vendors and care delivery organizations in their implementations.

It should be noted that after a significant amount of work was invested, there are now excellent standards available that are relatively easy to implement, but the path there was expensive and slow. Addressing some of the above challenges early on can reduce this cost and complexity.

In addition the coding aspects of standards need to be addressed. A significant amount of the value of data exchange is difficult to be realized if incompatible coding schemes are allowed. This is of particular importance in laboratory result reporting, where there is a significant need to trend data over time rather than view a single report.

Furthermore tools to support smaller vendors make a big difference to speed of adoption. This can be as simple as documentation on how to map existing standards into the new standard. We have participated in projects using HL7 V3 where the cost of adoption was very small because of the delivery of good supporting information including examples, data tables, etc).

2.2 Standards should be developed vertically rather than from scratch

HIT standards should be built vertically upon existing technical standards so that tools and techniques can be immediately employed. For example, HL7v3 is built on XML, meaning that a lot of existing tools and code are relevant. However, HL7 2.x is built on a pipe-delimited format that required some custom tools to be created before it could be effectively dealt with.

Orion Health has observed some jurisdictions attempt to *develop* new standards (rather than *adopt* existing ones). While there may not be good existing standards, the net result is usually to increase

the time and cost of implementation, as vendors have more work to do and fewer customers to amortize that cost. Scandinavian countries implemented “KITH” for messaging lab results, much to their own detriment.

2.3 Communicate cheaply and often

The current standards development process actually does allow a lot of time for vendors to get ready to support standards. There are lots of inputs and feedback opportunities and comment periods. However, most vendors cannot afford to allocate resources to participating in the standards development processes, as there are so many going on at once.

If the standards committee could conduct regular briefings of where things stand, it might help everyone stay organized. Most vendors simply want to know what is going on, rather than actively participate. Several bodies promoting the adoption of Health IT have vendor engagement programs. Typically they might classify vendors by how much engagement they want, but will provide mechanisms to receive news and updates.

2.4 Organizations like IHE help put interoperability into practice

IHE provides a framework that takes the next step beyond adoption of a standard, and makes it easier for vendors to implement, test, and certify their applications as compliant. They do this by

- Having clear integration profiles with little ambiguity
- Provide a connectathon program, with supporting assets such as test harnesses

While few RFPs have included specific profiles as a mandated requirement, this is probably more to do with the lack of incentives for adoption (e.g. the meaningful use criteria) than anything inherently wrong about the approach.

2.5 Consider the entire HIT landscape, not just standards

Often there can be more than just a missing standard that prevents exchange of health data. There can be legislative barriers, and the need to acknowledge that many projects can rely on multiple standards acting together to perform a useful function. As examples, laws surrounding use of data have in other jurisdictions blocked the implementation of regional patient identification schemes, privacy legislation can prevent the sharing of data if not well understood, digital signatures may not be universally acceptable as a proxy for a written signature.

Stating that a particular standard is to be used to exchange information is only part of the solution, there must also be a commitment to link the provision of functionality with a requirement of interoperability. As an example when laboratory results were reported on paper most Laboratory Information Systems did not have any way of sending out laboratory results. Even today there are still implementations that do not electronically send laboratory results. Without this latter requirement the market can end up with a large number of functional systems that do not exchange information.

Organizations such as Infoway and NEHTA in Australia have generally learned that their role is to lay the groundwork and act in an enablement capacity. This can involve work on standards, implementation guidelines, standardizing approaches for identification of patients and providers, lobbying for legislative changes and incentivizing adoption through financial means. The role is about creating an economic environment in which vendors and care delivery organizations will act in their own best interests to the correct outcome.

Furthermore consideration should be given to the purpose of the interoperability. Most of the ARRA driven work at the moment seems to be coming down to the point made by Dr. David Blumenthal that meaningful use appears to be about quality indicators primarily. Therefore, the need is to have the data available in the EMR or else to exchange it with other systems in order to have a complete set of information. (For instance, lab results of A1C values are needed to demonstrate benefits in respect of diabetic patients, and generally lab results come into the EMR electronically rather than being manually entered)

So, connectivity should be via a standard that can contain the data sets that are needed for quality reporting. In this context, it seems that the CCR / CCD standard is the most likely to meet this need. If the standard is used for multiple uses, it starts to have significant utility and makes it more worthwhile implementing e.g. for communication such as referrals, discharge summaries, patient communication, and reporting.

2.6 Provide confidence in the longevity of the standard

Some standards get built and are never widely adopted. Other standards get replaced pretty quickly. A lack of longevity of standards makes vendors unwilling to build around standards until they are well-adopted.

The current trend is for standards to be tied to stimulus funds, so that gives some measure of assurance that they'll take root. This helps resolve the “chicken and egg” nature of standards where vendors won’t adopt them until customer demand arrives, and customers won’t demand it until it can be implemented reasonably cheaply.

This is not to say that standards shouldn’t be responsive and evolve to address issues.

2.7 Major decisions should involve the vendor community

In 2004 a directive was issued at the CDC to adopt HL7 V3. The entire sector spent much time and money adopting this new standard. It was clear that this was then (and is still, now) unattainable by the preponderance of local/state/CDC public health partners and most healthcare provider partners.

The main point here is that a directive like this, proposed without input from the affected population, can set the adoption of electronic message exchange back years and cost lots of scarce resources (people, political capital, and money).

3 Responses to Questions

When working with your clients, what business problem (e.g., clinical issue, health outcomes problem, etc) were you helping them solve with implementing interoperability across organizational boundaries? What standards did you use and why? What were the outcomes they were looking for? Were these outcomes achieved?

Orion Health has worked on a wide range of projects, but the major ones that cross organizational boundaries are HIE/Shared EHR projects, and Referral projects.

The primary 2 standards that have been used are:

- HL7 2.x
- HL7 V3

Typically we do not select the standards, rather they are chosen by the customer, or by a governmental agency tasked with standards selection within a jurisdiction.

The main goal of these projects is to exchange data between systems without losing the meaning of that data. By and large this is achieved, subject to the difficulties outlined in section 2 of this document.

What controlled medical vocabulary standards does your product use?

Our software is not tied to a specific vocabulary. We have worked with LOINC, SNOMED CT, ICD9 and ICD10 and local code sets.

What challenges do you see in adopting the standards that have been recommended by the HIT Standards Committee?

The main challenges as outlined in section 2 of this document pertain to accessing enough tools to ensure adoption of specific standards is relatively easy and cheap and also ensuring that organizations are required to support be ability to exchange information.

Were there challenges associated with trying to implement standards between large entities with significant IT capabilities and those that were less well provisioned? What compromises had to be made?

As smaller organizations have smaller budgets and IT staff the existing systems are less likely to support standards for two reasons. With smaller budget a small organization will have less choice in software, meaning that some features may not be available (such as the ability to send and receive information in a standards based way).

With a small IT staff a smaller organization is less likely to be using features such as HL7 interfaces, as these can be complex to implement.

These factors means that in a smaller organization Orion Health has often had to use non standards based methods (such as direct queries) to complete an integration project.

What considerations would you suggest when it comes to standards with respect to the small practice market where adoption has been low and where the IT capabilities may be lacking?

Include a broad spectrum of tools, including documentation, examples, economic incentives, clarity around legal responsibilities.

In cases of low adoption of the proposed standard, are there alternative standards that should be allowed if they support the goals of meaningful use, privacy or security?
Yes. Based on our experience an healthcare organization which purchased a new system may not be inclined to perform an upgrade (which can present significant cost and risk) to a later version (which will support the latest standards) for 5 – 8 years. This means that a system implemented in 2007 may not be upgraded until 2012 – 2015, leaving a large number of systems using older versions of standards. To ensure the highest adoption rates for interoperability it is important that exceptions are made to support any legacy standards that are already in place. This needs to be managed to ensure that older standards do not get implemented in new releases of software.
For example allowing organizations and vendors to keep using old version of HL7 for software already in place will enable a greater uptake and increase the likely hood of reaching critical mass.

How did implementing interoperability between organizations help your clients achieve their goals, or did it inhibit progress toward achieving their goals? What role did the standards play?
Interoperability is mandatory for our clients to achieve their goals about sharing data. It's difficult to imagine life without these interoperability standards. The standards play a fundamental, foundational layer without which most projects could not proceed.

What is an example of the greatest success and the most frustrating issue from your clients' implementations? What would you have done differently based on this experience if you knew what you know now?
Greatest Success: Implementing HL7 v3 in Canada in support of provincial HIE projects.
Frustrating Issues: The most frustrating issue that Orion Health experiences when doing integration projects is dealing with software which does not have any way of getting information into or out of it.
Differently: Get more upfront understanding of HL7 v3.

What advice would you give to help others mitigate problems or accelerate adoption of interoperable health information technology to improve health care quality and cost effectiveness?
Please review our section 2 advice.